APPENDIX VI.
ELIZABETH CITY UNIFIED DEVELOPMENT ORDINANCE

STORM WATER MANAGEMENT ORDINANCE

CITY OF ELIZABETH CITY, NORTH CAROLINA

November 20, 2001

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A-6-1. ARTICLE I. GENERAL PROVISIONS

SECTION A. Title; purpose

1. The provisions of this ordinance shall constitute and be known as the "Storm Water Management Ordinance for The City of Elizabeth City.

2. The purpose of this Ordinance is to protect, maintain, and enhance the public health, safety, and general welfare by establishing minimum requirements and procedures to regulate:
   a. The adverse effects of increased storm water runoff associated with both future land development and existing developed land within the City. Proper management of storm water runoff will minimize damage to public and private property, ensure a functional drainage system, reduce the effects of development on land and stream channel erosion, assist in the attainment and maintenance of water quality standards, enhance the local environment associated with the drainage system, reduce local flooding, maintain as nearly as possible the pre-developed runoff characteristics of the area, and facilitate economic development while mitigating associated flooding and drainage impacts.
   b. Illegal non-storm water discharges to the storm drainage system to the maximum extent practicable as required by federal and state law. This ordinance establishes methods for controlling the introduction of pollutants into the municipal separate storm sewer system (MS4) in order to comply with requirements of Phase II of the National Pollutant Discharge Elimination System (NPDES) permit process. Additional objectives of this ordinance are:
      1. To regulate the contribution of pollutants to the small municipal separate storm sewer system (MS4) by storm water discharges by any user
      2. To prohibit illicit connections and discharges to the municipal separate storm sewer system
      3. To establish legal authority to carry out all inspection, surveillance and monitoring procedures necessary to ensure compliance with this ordinance

3. The application of this Ordinance and the provisions expressed herein shall be the minimum storm water management requirements and shall not be deemed a limitation or repeal of any other powers granted by any Federal, State, or Local requirements. In addition, if site characteristics indicate that complying with these minimum requirements will not provide adequate designs or protection for local property or residents, it is the designer's responsibility to exceed the minimum requirements as necessary. The City Engineer or designee shall be responsible for the coordination and enforcement of the provisions of this ordinance.

SECTION B. Definitions

For the purpose of this Ordinance, the following terms, phrases and words, and their derivatives, shall have the meaning given herein:

1. As-built plan shall mean a set of engineering or site drawings that delineate the specific permitted storm water management facility as actually constructed.

2. Best management practices shall mean a wide range of management procedures, schedules of activities, prohibitions on practices and other management practices which have been demonstrated to effectively control the quality and/or quantity of storm water runoff and which are compatible with the planned land use.

3. Cross-drain culvert shall mean a culvert located under a roadway.

4. Design report shall mean the report that accompanies the storm water management plan and includes data used for engineering analysis, results of all analysis, design and analysis calculations (including results obtained from computer programs), and other engineering data that would assist the City Engineer in evaluating proposed storm water management facilities.

5. Designer shall mean a professional who is permitted to prepare plans and studies required by this ordinance.

6. Detention structure shall mean a permanent storm water management structure whose primary purpose is to temporarily store storm water runoff and release the stored runoff at controlled rates.

7. Development should generally mean any of the following actions undertaken by a public or private individual or entity:
   - the division of a lot, tract or parcel of land into two (2) or more lots, plots, sites, tracts, parcels or other divisions by plat or deed, or
   - any land change, including, without limitation, clearing, tree removal, grubbing, stripping, dredging, grading, excavating, transporting and filling of land.

8. Develop land shall mean to change the runoff characteristics of a parcel of land in conjunction with residential, commercial, industrial, or institutional construction or alternation.

9. Developed land use conditions shall mean the land use conditions according to the current City Land Use Map or proposed development plan.

10. Easement shall mean a grant or reservation by the owner of land for the use of such land by others for a specific purpose or purposes, and which must be included in the conveyance of land affected by such easement.

11. Erosion shall mean the wearing away of land surface by the action of wind, water, gravity, ice, or any combination of those forces.

12. Erosion and sediment control shall mean the control of solid material, both mineral and organic, during a land disturbing activity to prevent its transport out of the disturbed area by means of air, water, gravity, or ice.

13. Existing land use conditions shall mean the land use conditions existing at the time of the proposed development

14. Grading shall mean excavating, filling (including hydraulic fill) or stockpiling of earth material, or any combination thereof, including the land in its excavated or filled condition.

15. Hazardous Materials shall mean any material, including any substance, waste, or combination thereof, which because of its quantity, concentration, or physical, chemical, or infectious characteristics may cause, or significantly contribute to, a substantial present or potential hazard to human health, safety, property, or the environment when improperly treated, stored, transported, disposed of, or otherwise managed.

16. Illegal Discharge shall mean any direct or indirect non-storm water discharge to the storm drain system, except as exempted in Section X of this ordinance.

17. Illicit Connections shall mean either of the following:
Any drain or conveyance, whether on the surface or subsurface, which allows an illegal discharge to enter the storm drain system including but not limited to any conveyances which allow any non-storm water discharge including sewage, process wastewater, and wash water to enter the storm drain system and any connections to the storm drain system from indoor drains and sinks, regardless of whether said drain or connection had been previously allowed, permitted, or approved by an authorized enforcement agency or,
Any drain or conveyance connected from a commercial or industrial land use to the storm drain system which has not been documented in plans, maps, or equivalent records and approved by an authorized enforcement agency.

18. Impervious shall mean the condition of being impenetrable by water.

19. Imperviousness shall mean the degree to which a site is impervious.

20. Infiltration shall mean the passage or movement of water through the soil profile.

21. Interior culvert shall mean a culvert that is not located under a roadway.

22. Land disturbing activity shall mean any use of the land by any person that results in a change in the natural cover or topography that may cause erosion and contribute to sediment and alter the quality and/or quantity of storm water runoff.

23. Maintenance shall mean any action necessary to preserve storm water management facilities in proper working condition, in order to serve the intended purposes set forth in Article I of this Ordinance and to prevent structural failure of such facilities. Maintenance shall not include actions taken solely for the purpose of enhancing the aesthetics aspects associated with storm water management facilities.

24. City Engineer shall mean the duly designated Department Head of the City Engineering Department or Department of Public Works, or his duly authorized agent.

25. City Engineering Department shall mean the department responsible for all storm water management activities and implementation of the provisions of this ordinance.

26. City shall mean the City of Elizabeth City.

27. Natural waterways shall mean waterways that are part of the natural topography. They usually maintain a continuous or seasonal flow during the year and are characterized as being irregular in cross-section with a meandering course. Construction channels such as drainage ditches shall not be considered natural waterways.

28. Non-erodible shall mean a material, e.g., natural rock, riprap, concrete, plastic, etc., that will not experience surface wear due to natural forces of wind, water, ice, gravity or a combination of those forces.

29. Non-point source pollution shall mean pollution contained in storm water runoff from ill-defined, diffuse sources.

30. Non-Storm Water Discharge. shall mean any discharge to the storm drain system that is not composed entirely of storm water.

31. One hundred year frequency storm shall mean a storm that is capable of producing rainfall expected to be equaled or exceeded on the average of once in 100 years. It also may be expressed as an exceedance probability with a 1 percent chance of being equaled or exceeded in any given year.

32. On-site storm water management shall mean the design and construction of a

facility necessary to control storm water runoff within and for a single development.

33. Person responsible for the land disturbing activity shall mean:

    a. the person who has or represents having financial or operational control over the land disturbing activity; and/or

    b. the landowner or person in possession or control of the land who directly or indirectly allowed the land disturbing activity or has benefited from it or who has failed to comply with any provision of this ordinance.

34. Pollutant. shall mean anything which causes or contributes to pollution. Pollutants may include, but are not limited to: paints, varnishes, and solvents; oil and other automotive fluids; non-hazardous liquid and solid wastes and yard wastes; refuse, rubbish, garbage, litter, or other discarded or abandoned objects, ordinances, and accumulations, so that same may cause or contribute to pollution; floatables; pesticides, herbicides, and fertilizers; hazardous substances and wastes; sewage, fecal coliform and pathogens; dissolved and particulate metals; animal wastes; wastes and residues that result from constructing a building or structure; and noxious or offensive matter of any kind.

35. Post-development conditions shall mean the conditions which exist following the completion of the land disturbing activity in terms of topography, vegetation, land use and rate, volume or direction of storm water runoff.

36. Pre-developed conditions shall mean those land use conditions that existed prior to the initiation of the land disturbing activity in terms of topography, vegetation, land use and rate, volume or direction of storm water runoff.

37. Preliminary plat shall mean the preliminary plat of a residential subdivision submitted pursuant to the City's Subdivision Regulations.

38. Record survey shall mean a final field survey which locates the visible surface features of a constructed storm water facility on the ground, but without locating non-visible or sub-surface features such as the actual route and elevation of buried pipe.

39. Regional storm water management shall mean the design and construction of a facility necessary to control storm water runoff within or outside a development and for one or more developments.

40. Registered Civil Engineer shall mean a civil engineer properly registered and licensed to conduct work within the City.

41. Registered Land Surveyor shall mean a land surveyor properly registered and licensed to conduct work within the City.

42. Registered Landscape Architect shall mean a landscape architect properly registered and licensed to conduct work within the City.

43. Responsible personnel shall mean any foreman, superintendent, or similar individual who is the on-site person in charge of land disturbing activities.

44. Retention structure shall mean a permanent structure whose primary purpose is to permanently store a given volume of storm water runoff. Release of the given volume is by infiltration and/or evaporation.

45. Sediment shall mean solid particulate matter, both mineral and organic, that has been or is being transported by water, air, ice, or gravity from its site of origin.

46. Stabilization shall mean the installation of vegetative or structural measures to establish a soil cover to reduce soil erosion by storm water runoff, wind, ice and gravity.

47. Stage work or stage construction shall mean a plan for the staged construction of storm water facilities where portions of the facilities will be constructed as different stages of the proposed development are started or completed.

48. Storm Drainage System. Facilities by which storm water is collected and/or conveyed, including but not limited to any roads with drainage systems, municipal streets, gutters, curbs, inlets, piped storm drains, pumping facilities, retention and detention basins, natural and human-made or altered drainage channels, reservoirs, and other drainage structures.

49. Storm Water Concept Plan shall mean the overall proposal for a storm drainage system, including storm water management structures, and supporting documentation as specified in the Storm Water Management Design Manual, for each proposed private or public development to the extent permitted by law. Also included are the supporting engineering calculations and results of any computer analysis, if necessary

50. Storm Water Management shall mean the collection, conveyance, storage, treatment and disposal of storm water runoff in a manner to minimize accelerated channel erosion, increased flood damage, and/or degradation of water quality and in a manner to enhance and ensure the public health, safety, and general welfare, which shall include a system of vegetative or structural measures, or both, that control the increased volume and rate of storm water runoff caused by manmade changes to the land.

51. Storm Water Management Design Manual/Criteria shall mean the information and guidelines for design, performance, and review criteria for storm water management practices in the City. This information can be obtained from the City Engineer.

52. Storm Water management facilities shall mean those structures and facilities that are designed for the collection, conveyance, storage, treatment and disposal of storm water runoff into and through the drainage system.

53. Storm Water Management Plan shall mean the set of drawings and other documents that comprise all of the information and specifications for the drainage systems, structures, concepts and techniques that will be used to control storm water as required by this ordinance and the Storm Water Management Design Manual/Criteria. Also included are the supporting engineering calculations and results of any computer analysis.

54. Storm Water Management Qualitative Control shall mean a system of vegetative, structural, or other measures that reduce or eliminate pollutants that might otherwise be carried by storm water runoff.

55. Storm Water Runoff shall mean the direct response of a watershed to precipitation and includes the surface and subsurface runoff that enters a ditch, stream, storm drain or other concentrated flow during and following the precipitation.

56. Swale shall mean a structural measure with a lining of grass, riprap or other materials which can function as a detention structure and convey storm water runoff without causing erosion.

57. Ten-year Frequency Storm shall mean a storm that is capable of producing rainfall expected to be equaled or exceeded on the average of once in 10 years. It may also be expressed as an exceedance probability with a 10 percent chance of being equaled or exceeded in any given year.

58. Twenty-five year Frequency Storm shall mean a storm that is capable of producing rainfall expected to be equaled or exceeded on the average of once in 25 years. It may also be expressed as an exceedance probability with a 4 percent chance of being equaled or exceeded in any given year.

59. Two-year Frequency Storm shall mean a storm that is capable of producing rainfall expected to be equaled or exceeded on the average of once in 2 years. It may also be expressed as an exceedance probability with a 50 percent chance of being equaled or exceeded in any given year.

60. Variance shall mean the modification of the minimum storm water management requirements for specific circumstances where strict adherence of the requirements would result in unnecessary hardship and not fulfill the intent of this ordinance.
U. D. O. shall mean the City of Elizabeth City's currently adopted Unified Development Ordinance

61. Waiver shall mean the relinquishment from storm water management requirements by the City Engineer for a specific land disturbing activity on a case-by-case review basis.

62. Wastewater shall mean any water or other liquid, other than uncontaminated storm water, discharged from a facility.

63. Water Quality shall mean those characteristics of storm water runoff from a land disturbing activity that relate to the physical, chemical, biological, or radiological integrity of water.

64. Water Quantity shall mean those characteristics of storm water runoff that relate to the rate and volume of the storm water runoff to downstream areas resulting from land disturbing activities.

65. Watershed shall mean the drainage area contributing storm water runoff to a single point.

SECTION C. Scope of Ordinance

No person shall develop any land without having provided for appropriate storm water management measures that control or manage runoff, in compliance with this Ordinance, unless exempted in Article I, Section D below. See Exhibit 1 drainage basin map at the end of this document for City area covered.

SECTION D. Exemptions from requirements

The following development activities are exempt from the provisions of the Ordinance and the requirements of providing storm water management measures.

1. Construction or improvement of single family residences or their accessory buildings which are separately built and not part of multiple construction of a subdivision development.

2. Sites not part of a larger development that are smaller than one acre.

SECTION E. Storm Water Management Design Manual/Criteria

From time to time the City Engineer will develop technical information to assist in the design and evaluation of storm water management facilities in the City. The following documents are incorporated by reference and are available in the office of the City Engineer for review.

57. a. NC Administrative Code Section 15A NCAC 2H.100 Stormwater Management

b. Stormwater Best Management Practices , NCDENR, DWQ, April 1999

c. Handbook of Design for Highway Surface Drainage Structures, NCDOT, 1973

d. Guidelines for Drainage Structures and Hydraulic Design, NCDOT, June 1990. Addendum to c. above.

These documents and other information provided by the City Engineer for recommended design procedures and criteria are presented for conducting hydrologic and hydraulic evaluations. Although the intention of the information is to establish uniform design practices, it neither replaces the need for engineering judgment nor precludes the use of information not presented. Other accepted engineering procedures may be used to conduct hydrologic and hydraulic studies if approved by the City Engineer.

A-6-2. ARTICLE II. STORM WATER CONCEPT AND PRELIMINARY DEVELOPMENT PLANS

SECTION A. Scope of development plans

1. a. In developing plans for residential subdivisions, individual lots in a residential subdivision development shall not be considered to be separate land disturbing activities and shall not require individual permits. Instead the residential subdivision development, as a whole, shall be considered to be a single land disturbing activity. Hydrologic parameters that reflect the ultimate subdivision development shall be used in all engineering calculations.

b. If individual lots or sections in a residential subdivision are being developed by different property owners, all land disturbing activities related to the residential subdivision shall be covered by the approved storm water management plan for the residential subdivision. Individual lot owners or developers shall sign a certificate of compliance that all activities on that lot will be carried out in accordance with the approved storm water management plan for the residential subdivision.

c. Residential subdivisions which were approved prior to the effective date of these regulations are exempt from these requirements. Development of new phases of existing subdivisions which were not previously approved shall comply with the provisions of these regulations.

d. All other land disturbing activities on sites one acre or larger.

SECTION B. Storm water concept/sketch and storm water management plans

1. A storm water concept/sketch plan for each development(subdivision or site plan) greater than or equal to one acre shall be submitted for review by the City Engineer prior to submission of the storm water management plan and construction plans for the entire development, or any portion thereof.

2. All preliminary plats of the development shall be consistent with the storm water concept plan required in Paragraph 1 above.

3. Upon approval of the concept/sketch plan, the applicant shall submit a final storm water management plan (as part of the construction plans) to the City Engineer for review and approval; provided that the City Engineer may accept and submit into the review process a storm water concept plan if it identifies the location and type of facilities to be constructed in sufficient detail to accurately estimate construction costs and the City Engineer determines that a storm water management plan is not needed. If accepted under this provision, the storm water concept plan then becomes the storm water management plan for this development.

4. Should any storm water management plan involve any storm water management facilities or land to be dedicated to public use, the same information shall also be submitted for review and approval to the department having jurisdiction over the land or other appropriate departments or agencies identified by the City Engineer for review and approval. This storm water management plan shall serve as the basis for all subsequent construction.

5. The storm water concept plan may be reviewed, if needed, with the designer, after City review, where it will either be approved, approved with changes, or rejected. If rejected, changes, additional analysis, or other information needed to approve the next submittal of the concept plan shall be identified.

SECTION C. Permit requirements

1. No final occupancy permit shall be issued without the following:

a. Recorded easements for storm water management facilities.

b. Receipt of an as-built plan which includes a certification of the storm drainage system.

2. No site grading permit shall be issued or modified without the following:

a. Right of entry for emergency maintenance if necessary.

a. Right of entry for inspections.

c. Any off-site easements needed.

d. An approved storm water concept plan or storm water management plan, as appropriate.

3. The approved storm water management plan shall contain certification by the applicant that all land clearing, construction, development and drainage will be done according to the storm water management plan or previously approved revisions. Any and all site grading permits may be revoked at any time if the construction of storm water management facilities is not in strict accordance with approved plans.

4. In addition to the plans and permits required from the City, applicants shall obtain all state and federal permits required for the proposed development.

SECTION D. Fees

A list of fees for plan review and other fees associated with this ordinance can be obtained from the Public Works Department.

SECTION E. Permit suspension and revocation

I. A site grading permit may be suspended or revoked if one or more of the following violations have been committed:

a. violation(s) of the conditions of the storm water management plan approval;

b. construction not in accordance with the intent of the approved plans;

c. non-compliance with correction notice(s) or stop work orders(s); or

d. the existence of an immediate danger in a downstream area in the judgment of the City Engineer. If one or more of these conditions is found,

a written notice of violations shall be served upon the owner or authorized representative and an immediate stop-work order may be issued. The notice shall set forth the measures necessary to achieve compliance with the plan. Correction of these violations must be started immediately or the owner shall be deemed in violation of this ordinance.

SECTION F. Minimum runoff control requirements

1. The minimum storm water control requirements shall provide management measures necessary to accomplish the following:

   a. Storm drainage systems shall be designed based on size of drainage basins involved. However emergency spillways shall be designed to pass the 50 year storm. See Section I. The design of these facilities shall be approved by the City Engineer.

   b. The requirements, or portions thereof, of item (a.) may be waived by the City Engineer if it can be shown by detailed engineering calculations and analysis which are acceptable to the City Engineer that one of the following exists:

      1. the installation of storm water management facilities would have insignificant effects on reducing downstream flood peaks; or

      2. storm water management facilities are not needed to protect downstream developments and the downstream drainage system has sufficient capacity to receive any increase in runoff for the design storm; or

      3. it is not necessary to install storm water management facilities to control developed peak discharge rates at the exit to a proposed development and installing such facilities would increase flood peaks at some downstream locations; or

      4. the City Engineer determines that storm water management facilities are not needed to control developed peak discharge rates and installing such facilities would not be in the best interest of the City.

   c. The requirements, or portions thereof, of item (a.) may not be waived if the City Engineer determines that not controlling downstream flood peaks would increase known flooding problems, or exceed the capacity of the downstream drainage system.

d. A waiver shall only be granted after a written request is submitted by the applicant containing descriptions, drawings, and any other information that is necessary to evaluate the proposed land disturbing activity. A separate written waiver request shall be required if there are subsequent additions, extensions, or modifications which would alter the approved storm water runoff characteristics to a land disturbing activity receiving a waiver.

e. Discharge velocities shall be reduced to provide a non-erosive velocity flow from a structure, channel, or other control measure or the velocity of the 10-year design storm runoff in the receiving waterway prior to the land disturbing activity, whichever is greater.

2. For all storm water management facilities, a hydrologic - hydraulic study shall be done showing how the drainage system will function with and without the proposed facilities. For such studies the following land use conditions shall be used:

a. For the design of the facility outlet structure, use developed land use conditions for the area within the proposed development and existing land use conditions for upstream areas draining to the facility.

b. For any analysis of flood flows downstream from the proposed facility, use existing land use conditions for all downstream areas.

c. All storm water management facilities emergency spillways shall be checked using the 50-year storm and routing flows through the facility and emergency spillways. For this analysis, developed land use conditions shall be used for all areas within the analysis.

d. If accepted for City maintenance, the effects of existing upstream detention facilities can be considered in the hydrologic-hydraulic study.

SECTION G. Storm water management facilities

1. Storm water management facilities may include both structural and nonstructural elements. Natural swales and other natural runoff conduits shall be retained where practicable.

2. Where additional storm water management facilities are required to satisfy the minimum Control requirements, the following measures are examples of what may be used:

a. storm water detention structures (dry basins);

b. storm water retention structures (wet ponds);

c. facilities designed to encourage overland flow, slow velocities of flow, and

flow through buffer zones;

d. infiltration practices.

3. Where detention and retention structures are used, designs which consolidate these facilities into a limited number of large structures will be preferred over designs which utilize a large number of small structures.

4. Storm water management plans can be rejected by the City Engineer if they incorporate structures and facilities that will demand considerable maintenance, will be difficult to maintain, or utilize numerous small structures if other alternatives are physically possible.

5. The drainage system and all storm water management structures within the City (including both public and private portions) will be designed to the same engineering and technical criteria and standards. The City Engineering Department's review will be the same whether the portion of the drainage system will be under public or private control or ownership.

6. All storm water management measures shall be designed in accordance with the design criteria or procedures approved by the City Engineer.

SECTION H. Plan requirements

Storm water management plans shall include as a minimum the following:

1. A vicinity map indicating a north arrow, scale, boundary lines of the site, and other information necessary to locate the development site.

2. The existing and proposed topography of the development site including individual lot grading plans in single family subdivisions.

3. Physical improvements on the site, including present development and proposed development.

4. Location, dimensions, elevations, and characteristics of all storm water management facilities on site as well as impacted downstream receiving facilities.

5. All areas within the site which will be included in the land disturbing activities shall be identified and the total disturbed area calculated.

6. The location of temporary and permanent vegetative and structural storm water management as control measures.

7. An anticipated starting and completion date of the various stages of land disturbing activities and the expected date the final stabilization will be completed.

8. A determination that all occupied first floor elevations of any structures complies with the City's current flood hazard regulations.

9. Storm water management plans shall include designation of all easements needed for inspection and maintenance of the drainage system and storm water management facilities. As a minimum, easements shall have the following characteristics.

    a. Provide adequate access to all portions of the drainage system and structures.

    b. Provide sufficient land area for maintenance equipment and personnel to adequately and efficiently maintain the system with a minimum of ten (10) feet along both sides of all drainage ways, streams, channels, etc., and around the perimeter of all detention and retention facilities, or sufficient land area for equipment access for maintenance of all storm water management facilities. This distance shall be measured from the top of the bank or toe of the dam whichever is applicable.

    c. Restriction on easements shall include prohibiting all fences and structures which would interfere with access to the easement areas and/or the maintenance function of the drainage system.

10. To improve the aesthetic aspects of the drainage system, a landscape plan for all portions of the drainage system shall be part of the storm water management plan. This landscape plan shall address the following.

    a. Tree saving and planting plan.

    b. Types of vegetation that will be used for stream bank stabilization, erosion control, sediment control, aesthetics and water quality improvement.

    c. Any special requirements related to the landscaping of the drainage system and efforts necessary to preserve the natural aspects of the drainage system.

11. To improve the water quality aspects of the drainage system, the storm water management plan shall include best management practices to control the water quality of the runoff during the land disturbing activities and during the life of the development.

12. The storm water management plan shall include all engineering calculations needed to design the system and associated structures including pre- and post-development velocities, peak rates of discharge, and inflow and outflow hydrographs of storm water runoff at all existing and proposed points of discharge

from the site, including pertinent offsite drainage calculations.

13. Description of site conditions around points of all surface water discharge including vegetation and method of flow conveyance from the land disturbing activity.

14. Construction and design details for structural controls.

15. The expected timing of flood peaks through the downstream drainage system shall be assessed when planning the use of detention facilities.

16. In determining downstream effects from storm water management structures and the development, hydrologic-hydraulic engineering studies shall extend downstream to a point where the proposed development represents less than or equal to the predevelopment flow.

17. If the storm water management plan and/or design report indicates that there may be a drainage or flooding problem at the exit to the proposed development or at any location downstream, the City Engineer may require:

    a. water surface profiles plotted for the conditions of pre- and post-development for the 10-year design storm;

    b. water surface profiles plotted for the conditions of pre- and post-development for the 100-year design storm;

    c. elevations of all structures potentially damaged by 10- and/or 100-year flows.

18. All storm water management plans submitted for approval shall contain certification by the person responsible for the land disturbing activity that the land disturbing activity will be accomplished pursuant to the approved plan and that responsible personnel will be assigned to the project.

19. All storm water management plans shall contain certification by the person responsible for the land disturbing activity, of the right of the City Engineer to conduct on-site inspections.

20. The storm water management plan shall not be considered approved without the inclusion of an approval stamp with a signature and date on the plans by the City Engineering Department. The stamp of approval on the plans is solely an acknowledgment of satisfactory compliance with the requirements of these regulations. The approval stamp does not constitute a representation or warranty to the applicant or any other person concerning the safety, appropriateness or effectiveness of any provision, or omission from the storm water management plan.

21. Approved storm water management plans remain valid for three (3) years from the date of an approval. Extensions or renewals of the plan approvals will be granted by the City Engineer upon written request by the person responsible for the land disturbing activity.

SECTION I. Plan hydrologic criteria

The storm design frequency to be used for the storm water concept and storm water management plans shall generally be based on the size of the drainage basins involved:

1.	75 Acres or less	=	5-year
	> 75 and < 300 Acres	=	10-year
	≥300 and < 500 Acres	=	25-year
	Greater Than or Equal to 500 Acres	=	50-year

2. 2- and 10-year design storms for all private detention and retention basins using procedures /criteria approved by the City Engineer.

3. The City Engineer may require that a drainage analysis be conducted to check the 100-year storm event for impact of local flooding, and possible flood hazards to adjacent structures and/or property.

4. For the design of storage facilities, a secondary outlet device or emergency spillway shall be provided to discharge the excess runoff in such a way that no danger of loss of life or facility failure is created. The size of the outlet device or emergency spillway shall be designed to pass the 50-year storm as a minimum requirement.

5. Storm drainage shall be designed to maintain the pre-developed runoff rate for the 10 year storm.

SECTION J. Prohibition of Illegal Discharges and Plan water quality criteria

1. Prohibition of Illegal Discharges.

No person shall discharge or cause to be discharged into the municipal storm drain system or watercourses any materials, including but not limited to pollutants or waters containing any pollutants that cause or contribute to a violation of applicable water quality standards, other than storm water. The commencement, conduct or continuance of any illegal discharge to the storm drain systems prohibited except as described as follows:

a. The following discharges are exempt from discharge prohibitions established by this ordinance: water line flushing or other potable water

sources, landscape irrigation or lawn watering, diverted stream flows, rising ground water, ground water infiltration to storm drains, uncontaminated pumped ground water, foundation or footing drains (not including active groundwater dewatering systems), crawl space pumps, air conditioning condensation, springs, non-commercial washing of vehicles, natural riparian habitat or wet-land flows, swimming pools (if dechlorinated - typically less than one PPM chlorine), fire fighting activities, and any other water source not containing Pollutants.

b. Discharges specified in writing by the authorized enforcement agency as being necessary to protect public health and safety.

c. Dye testing is an allowable discharge, but requires a verbal notification to the authorized enforcement agency prior to the time of the test.

d. The prohibition shall not apply to any non-storm water discharge permitted under an NPDES permit, waiver, or waste discharge order issued to the discharger and administered under the authority of the Federal Environmental Protection Agency, provided that the discharger is in full compliance with all requirements of the permit, waiver, or order and other applicable laws and regulations, and provided that written approval has been granted for any discharge to the storm drain system.

2. Prohibition of Illicit Connections.

a. The construction, use, maintenance or continued existence of illicit connections to the storm drain system is prohibited.

b. This prohibition expressly includes, without limitation, illicit connections made in the past, regardless of whether the connection was permissible under law or practices applicable or prevailing at the time of connection.

c. A person is considered to be in violation of this ordinance if the person connects a line conveying sewage to the MS4, or allows such a connection to continue.

3. Access to Facilities

a. The City Engineer shall be permitted to enter and inspect facilities subject to regulation under this ordinance as often as may be necessary to determine compliance with this ordinance. If a discharger has security measures in force which require proper identification and clearance before entry into its premises, the discharger shall make the necessary arrangements to allow access to representatives of the authorized

enforcement agency.

b. Facility operators shall allow the City Engineer ready access to all parts of the premises for the purposes of inspection, sampling, examination and copying of records that must be kept under the conditions of an NPDES permit to discharge storm water, and the performance of any additional duties as defined by local, state and federal law.

c. The City Engineer shall have the right to set up on any permitted facility such devices as are necessary in the opinion of the authorized enforcement agency to conduct monitoring and/or sampling of the facility's storm water discharge. He also has the right to require the discharger to install monitoring equipment as necessary. The facility's sampling and monitoring equipment shall be maintained at all times in a safe and proper operating condition by the discharger at its own expense. All devices used to measure storm water flow and quality shall be calibrated to ensure their accuracy.

d. Unreasonable delays in allowing the City Engineer access to a permitted facility is a violation of a storm water discharge permit and of this ordinance. A person who is the operator of a facility with a NPDES permit to discharge storm water associated with industrial activity commits an offense if the person denies the authorized enforcement agency reasonable access to the permitted facility for the purpose of conducting any activity authorized or required by this ordinance.

e. If the City Engineer has been refused access to any part of the premises from which stormwater is discharged, and he/she is able to demonstrate probable cause to believe that there may be a violation of this ordinance, or that there is a need to inspect and/or sample as part of a routine inspection and sampling program designed to verify compliance with this ordinance or any order issued hereunder, or to protect the overall public health, safety, and welfare of the community, then the authorized enforcement agency may seek issuance of a search warrant from any court of competent jurisdiction.

4. Watercourse Protection

Every person owning property through which a watercourse passes, or such person's lessee, shall keep and maintain that part of the watercourse within the property free of trash, debris, excessive vegetation, and other obstacles that would pollute, contaminate, or significantly retard the flow of water through the watercourse. In addition, the owner or lessee shall maintain existing privately owned structures within or adjacent to a watercourse, so that such structures will not become a hazard to the use, function, or

physical integrity of the watercourse.

5. Notification Of Spills

Notwithstanding other requirements of law, as soon as any person responsible for a facility or operation, or responsible for emergency response for a facility or operation has information of any known or suspected release of materials which are resulting or may result in illegal discharges or pollutants discharging into storm water, the storm drain system, or water of the U.S. said person shall take all necessary steps to ensure the discovery, containment, and cleanup of such release. In the event of such a release of hazardous materials said person shall immediately notify emergency response agencies of the occurrence via emergency dispatch services. In the event of a release of non-hazardous materials, said person shall notify the authorized enforcement agency in person or by phone or facsimile no later than the next business day. Notifications in person or by phone shall be confirmed by written notice within three business days of the phone notice. If the discharge of prohibited materials emanates from a commercial or industrial establishment, the owner or operator of such establishment shall also retain an on-site written record of the discharge and the actions taken to prevent its recurrence. Such records shall be retained for at least three years.

6. Enforcement

Whenever the City Engineer finds that a person has violated a prohibition or failed to meet a requirement of this Ordinance, the City Engineer may order compliance by written notice of violation to the responsible person. Such notice may require without limitation:

a. The performance of monitoring, analyses, and reporting;

b. The elimination of illicit connections or discharges;

c. That violating discharges, practices, or operations shall cease and desist;

d. The abatement or remediation of storm water pollution or contamination hazards and the restoration of any affected property; and

e. Payment of a fine to cover administrative and remediation costs; and

f. The implementation of source control or treatment BMPs.

If abatement of a violation and/or restoration of affected property is required, the notice shall set forth a deadline within which such remediation or restoration must be completed. Said notice shall further advise that, should the violator fail to remediate or restore within the established deadline, the work will be done by a designated governmental agency or a contractor and the expense thereof shall be charged to the violator.

Following are the criteria related to using storm water management facilities for water quality purposes.

7. Ponds, lakes and reservoirs

a. When ponds are used for water quality protection, the ponds shall be designed as both quantity and quality control structures. Sediment storage volume shall be calculated considering the clean out and maintenance schedules specified by the designer during the land disturbing activity. Sediment storage volumes may be predicted by the Universal Soil Loss Equation or methods acceptable to the City Engineer.

b. The sediment basin shall be designed and constructed to accommodate the anticipated sediment loading from the land-disturbing activity and meet a removal efficiency of 85 percent suspended solids . The outfall device or system design shall take into account the total drainage area flowing through the disturbed area draining to the basin.

c. Other practices may be acceptable to the City Engineer if they achieve an equivalent removal efficiency of 85 percent for suspended solids concentrations. The efficiency shall be calculated for disturbed conditions for the 10-year 24-hour design storm event.

d. Permanent water quality ponds having a permanent pool shall be designed to store and release the first 1 inch of runoff no sooner than two days or greater than five days from the site. Minimum depth shall be seven (7) feet.

8. Infiltration practices

a. Permanent infiltration practices, when used, shall be designed to accept, at a minimum, the first inch of runoff from all impervious areas.

b. Areas draining to infiltration practices must be established and vegetative filters established prior to runoff entering the system. Infiltration practices shall not be used if a suspended solids filter system does not accompany the practice. If vegetation is the intended filter, there shall be at least a 20 foot width of vegetative filter prior to storm water runoff entering the infiltration practice.

c. The bottom of the infiltration practice shall be at least 2.0 feet above the seasonal high water table, whether perched or regional, determined by

direct piezometer measurements which can be demonstrated to be representative of the maximum height of the water table on an annual basis during years of normal precipitation, or by the depth in the soil at which mottling first occurs.

d. The infiltration practice shall be designed to completely drain of water within 72 hours.

9. Soils must have adequate permeability to allow water to infiltrate. Infiltration practices are limited to soils having an infiltration rate of at least 0.52 inches per hour. Initial consideration will be based on a review of the appropriate soil survey, and the survey may serve as a basis for rejection. On-site soil borings and textural classifications must be accomplished to verify the actual site and seasonal high water table conditions when infiltration is to be utilized.

10. The design of infiltration practice shall provide an overflow system with measures to provide a non-erosive velocity of flow along its length and at the outfall.

11. The slope of the bottom of the infiltration practice shall not exceed five percent. Also, the practice shall not be installed in fill material as piping along the fill/natural ground interface may cause slope failure.

SECTION K. Professional registration requirements

Storm water concept and storm water management plans and design reports that are incidental to the overall or ongoing site design shall be prepared, certified, and stamped/sealed by a qualified registered Professional Engineer, Land Surveyor or Landscape Architect, using acceptable engineering standards and practices. All other Storm water concept and storm water management plans and design reports shall be prepared, certified, and stamped/sealed by a qualified registered Professional Engineer, using acceptable engineering standards and practices.

The engineer, surveyor, or landscape architect shall perform services only in areas of his/her competence, and shall undertake to perform engineering or land surveying assignments only when qualified by education and/or experience in the specific technical field. In addition, the engineer, surveyor, or landscape architect must verify that the plans have been designed in accordance with this ordinance and the standards and criteria stated or referred to in this ordinance.

A-6-3. ARTICLE III. OWNERSHIP AND CITY PARTICIPATION

SECTION A. Ownership of storm water management facilities

1. All storm water management facilities shall be privately owned and maintained

unless the City accepts the facility for City ownership and maintenance. The owner of all private facilities shall grant to the City, a perpetual, non-exclusive easement which allows for public inspection and emergency repair.

2. All storm water management measures relying on designated vegetated areas or special site features shall be privately owned and maintained as defined on the storm water management plan.

SECTION B. City participation

When the City Engineer determines that additional storage capacity beyond that required by the applicant for on-site storm water management is necessary in order to enhance or provide for the public health, safety and general welfare, to correct unacceptable or undesirable existing conditions or to provide protection in a more desirable fashion for future development, the City Engineer may:

a. require that the applicant grant any necessary easements over, through or under the applicant's property to provide access to or drainage for such a facility;

b. require that the applicant attempt to obtain from the owners of property over, through or under where the storm water management facility is to be located, any easements necessary for the construction and maintenance of same (and failing the obtaining of such easement the City may, at its option, assist in such matter by purchase, condemnation, dedication or otherwise, and subject to (c) below, with any cost incurred thereby to be paid by the City); and/or

c. participate financially in the construction of such facility to the extent that such facility exceeds the required on-site storm water management as determined by the City Engineer.

To implement this provision both the City and developer must be in agreement with the proposed facility that includes the additional storage capacity and jointly develop a cost sharing plan which is agreeable to all parties.

A-6-4. ARTICLE IV. MAINTENANCE, CONSTRUCTION AND INSPECTION

Section A. Maintenance

1.Any storm water discharge control facility which services a single lot or commercial and industrial developments shall be privately owned and maintained; provided, however, the owner thereof shall grant to the City, a perpetual, non-exclusive easement which allows for public inspection and emergency repair, in accordance

with the terms of the maintenance agreement set forth in Article IV, Section B, below.

2. All regional storm water discharge control facilities, identified on City storm water discharge control master plans, shall be publicly owned and/or maintained.

3. All other storm water discharge control facilities shall be publicly owned and/or maintained only if accepted for maintenance by the City.

4. Private maintenance requirements shall be a part of the deed to the affected property.

Section B. Maintenance agreement (privately owned facilities only)

1. A proposed inspection and maintenance agreement shall be submitted to the City Engineer for all private on-site storm water discharge control facilities prior to the approval of the storm water management plan. Such agreement shall be in form and content acceptable to the City Engineer and shall be the responsibility of the private owner. Such agreement shall provide for access to the facility by virtue of a non-exclusive perpetual easement in favor of the City at reasonable times for regular inspection by the City Engineer. The agreement will identify who will have the maintenance responsibility.

   a. A description of the property on which the storm water management facility is located and all easements from the site to the facility;

   b. Size and configuration of the facility;

   c. A statement that properties which will be served by the facility are granted rights to construct, use, reconstruct, repair, maintain, access to the facility;

   b. A statement that each lot served by the facility is responsible for repairs and maintenance of the facility and any unpaid ad valorem taxes, public assessments for improvements and unsafe building and public nuisance abatement liens charged against the facility, including all interest charges together with attorney fees, cost and expenses of collection. If an association is delegated these responsibilities, then membership into the association shall be mandatory for each parcel served by the facility and any successive buyer, the association shall have the power to levy assessments for these obligations, and that all unpaid assessments levied by the association shall become a lien on the individual parcel; and

   e. A statement that no amendments to the agreement will become effective unless approved by the City.

2. The agreement shall provide that preventive maintenance inspections of storm water management facilities may be made by the City Engineer, at his option. Without limiting the generality of the foregoing, the City Engineer's inspection schedule may include an inspection during the first year of operation and once every year thereafter, and after major storm events (i.e., 5- or 10-year floods).

3. Inspection reports shall be maintained by the City Engineer.

4. The agreement shall provide that if, after an inspection, the condition of a facility presents an immediate danger to the public health, safety or general welfare because of unsafe conditions or improper maintenance, the City shall have the right, but not the duty, to take such action as may be necessary to protect the public and make the facility safe. Any cost incurred by the City shall be paid by the owner.

5. The agreement shall be recorded by the owner in the Register of Deeds prior to the final inspection and approval.

6. The agreement shall provide that the City Engineer shall notify the owner(s) of the facility of any violation, deficiency or failure to comply with this Ordinance. The agreement shall also provide that upon a failure to correct violations requiring maintenance work, within ten (10) days after notice thereof, the City Engineer may provide for all necessary work to place the facility in proper working condition. The owner(s) of the facility shall be assessed the costs of the work performed by the City Engineer pursuant to this subsection and subsection 4 above and there shall be a lien on all property of the owner which property utilizes or will utilize such facility in achieving discharge control, which lien, when filed in the Register of Deeds, shall have the same status and priority as liens for ad valorem taxes. Should such a lien be filed, portions of the affected property may be released by the City following the payments by the owner of such owner's pro-rata share of the lien amount based upon the acreage to be released with such release amount to be determined by the City Engineer, in his reasonable discretion.

7. The City Engineer, at his sole discretion, may accept the certification of a registered engineer in lieu of any inspection required by this Ordinance.

Section C. Construction and inspection

1. Prior to the approval of the storm water management plan, the applicant shall submit a proposed staged construction and inspection control schedule. This plan shall indicate a phase line for approval; otherwise the construction and inspection control schedule will be for the entire drainage system.

2. No stage work, related to the construction of storm water management facilities, shall proceed until the next preceding stage of work, according to the sequence specified in the approved staged construction and inspection control schedule, is inspected and approved.

3. Any portion of the work which does not comply with the storm water management plan shall be promptly corrected by the permittee.

4. The permittee shall notify the City Engineer before commencing any work to implement the storm water management plan and upon completion of the work.

5. The permittee shall provide an "as-built" plan certified by a registered professional (as outlined in Article II, Section K) to be submitted upon completing of the storm water management facilities included in the storm water management plan. The registered professional shall certify that:

    a. the facilities have been constructed as shown on the "as-built" plan, and

    b. the facilities meet the approved storm water management plan and specifications or achieves the function for which they were designed.

6. A final inspection shall be conducted by the City Engineer upon completion of the work included in the approved storm water management plan to determine if the completed work is constructed in accordance with the plan.

7. The City Engineer shall maintain a file of inspection reports and provide copies of

    all inspection reports to the permittee that include the following.

    a. The date and location of the site inspection.

    b. Whether the approved plan has been properly implemented.

    c. Any approved plan deficiencies and any actions taken.

8. The City Engineer will notify the person responsible for the land disturbing activity In writing when violations are observed describing the following.

    a. Nature of the violation.

    b. Required corrective actions.

    c. The time period for violation correction.

A-6-5. ARTICLE V. MISCELLANEOUS PROVISIONS

SECTION A. Variances from requirements

1. Appeals, variances, and interpretations shall be conducted in accordance with the applicable sections of the City's current U.D.O.

SECTION B. Penalties and Violations

1. Violations and Penalties shall be processed according to the appropriate sections of the City's current U.D.O.

SECTION C. Grandfather clause

Any applicant or owner of a parcel of land within the jurisdiction of the City who has constructed the required storm water management facility or who is in the process of meeting the storm water management requirements of the law at the time of the effective date of this Ordinance may elect to apply to the City Engineer for reconsideration under the provisions of this ordinance.

SECTION D. Conflict with other laws

Whenever the provisions of this ordinance impose more restrictive standards than are required in or under any other ordinance, the regulations herein contained shall prevail. Whenever the provisions of any other ordinance require more restrictive standards than are required herein, the requirements of such shall prevail.

SECTION E. Severability

If any term, requirement or provision of this Ordinance or the application thereof to any person or circumstance shall, to any extent, be invalid or unenforceable, the remainder of this Ordinance or the application of such terms, requirements and provisions to persons or circumstances other than those to which it is held invalid or unenforceable, shall not be affected thereby and each term, requirement or provision of this Ordinance shall be valid and be enforced to the fullest extent permitted by law.

SECTION F. Amendments

This ordinance may be amended in the manner as prescribed by law for its original adoption..

SECTION G. Liability

Neither the approval of a plan under the provisions of this ordinance nor the compliance with the provisions of this ordinance shall relieve any person from the responsibility for damage to any person or property otherwise imposed by law nor shall it impose any liability upon the City for damage to any person or property.

SECTION H. Effective date

The Ordinance shall be effective upon adoption by City Council of the City of Elizabeth City, May 6th, 2002.